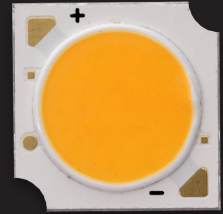


Bridgelux® E10 LED Array

Product Data Sheet DS442

Introduction

E Series



The E Series LED array products deliver high quality of light in a compact and cost-effective solid-state lighting package. These chip-on-board (COB) arrays are available in multiple performance and electrical configuration options, simplifying the design-in process. These high flux density light sources are designed to support a wide range of highly competitive directional luminaires and replacement lamps for commercial and residential applications.

Lighting system designs incorporating these LED arrays deliver increased system level efficacy. Typical applications include, but are not limited to, replacement lamps, task, accent, spot, track, downlight, wide area, security, and wall pack.

Features

- Wide range of performance from 580 to 4950 lm with CCT options from 2700K – 6500K
- Compact, high flux density light source
- Uniform, high quality illumination
- Streamlined thermal path
- ENERGY STAR® / ANSI compliant color binning structure with 3 and 5 SDCM options
- Higher energy efficiency than incandescent, halogen and CFL lamps
- Industry standard DC voltage operation
- Instant light with unlimited dimming
- RoHS and REACH compliant

Benefits

- Supports many general lighting applications
- Enables tight beam control when used with secondary optics
- Clean white light without pixilation
- Low thermal resistance
- Uniform, consistent white light
- Lower operating costs
- Aligns with industry standard drivers to reduce system costs
- Easy to use with daylight and motion detectors to enable increased energy savings
- Environmentally friendly

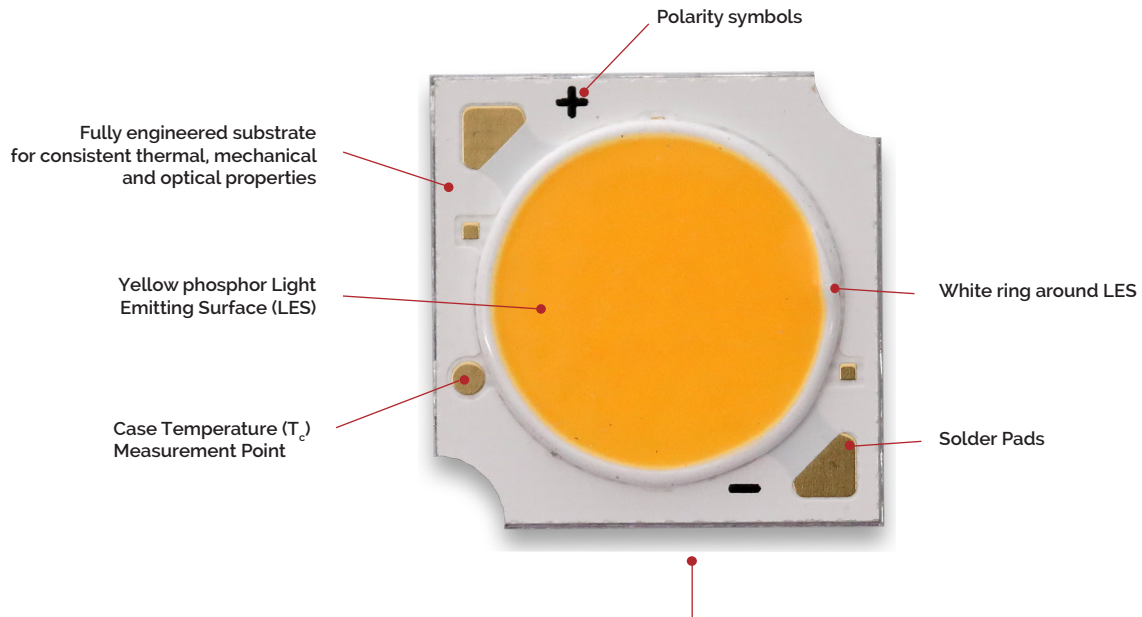


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Product Feature Map

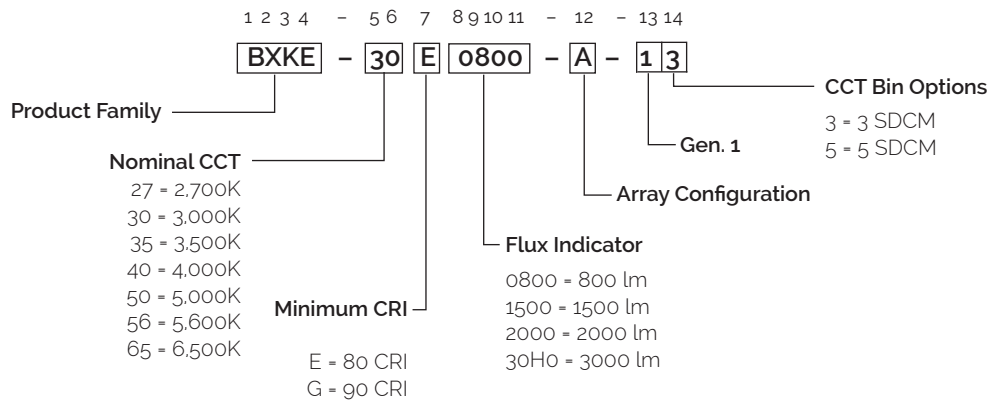
Bridgelux arrays are fully engineered devices that provide consistent thermal and optical performance on an engineered mechanical platform. The E Series arrays incorporate several features to simplify design integration and assembly.



Note: Part number and lot codes are scribed on back of array

Product Nomenclature

The part number designation for Bridgelux E Series LED arrays is explained as follows:



Product Selection Guide

The following product configurations are available:

Table 1: Selection Guide, Pulsed Measurement Data ($T_c = 25^\circ\text{C}$)

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current ³ (mA)	Typical Pulsed Flux ^{4,5,6} $T_c = 25^\circ\text{C}$ (lm)	Minimum Pulsed Flux ^{6,7} $T_c = 25^\circ\text{C}$ (lm)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKE-27E0800-A-1x	2700	80	160	716	623	38.5	6.2	116
BXKE-27E1500-B-1x	2700	80	320	1420	1235	38.0	12.2	117
BXKE-27E2000-C-1x	2700	80	480	2083	1811	37.3	17.9	116
BXKE-27E30H0-D-1x	2700	80	720	3005	2612	38.7	27.9	108
BXKE-27G0800-A-1x	2700	90	160	580	504	38.5	6.2	94
BXKE-27G1500-B-1x	2700	90	320	1150	1000	38.0	12.2	95
BXKE-27G2000-C-1x	2700	90	480	1689	1469	37.3	17.9	94
BXKE-27G30H0-D-1x	2700	90	720	2499	2173	38.7	27.9	90
BXKE-30E0800-A-1x	3000	80	160	750	652	38.5	6.2	122
BXKE-30E1500-B-1x	3000	80	320	1490	1296	38.0	12.2	123
BXKE-30E2000-C-1x	3000	80	480	2178	1894	37.3	17.9	122
BXKE-30E30H0-D-1x	3000	80	720	3130	2722	38.7	27.9	112
BXKE-30G0800-A-1x	3000	90	160	603	524	38.5	6.2	98
BXKE-30G1500-B-1x	3000	90	320	1200	1043	38.0	12.2	99
BXKE-30G2000-C-1x	3000	90	480	1753	1524	37.3	17.9	98
BXKE-30G30H0-D-1x	3000	90	720	2598	2259	38.7	27.9	93
BXKE-35E0800-A-1x	3500	80	160	775	674	38.5	6.2	126
BXKE-35E1500-B-1x	3500	80	320	1540	1339	38.0	12.2	127
BXKE-35E2000-C-1x	3500	80	480	2254	1960	37.3	17.9	126
BXKE-35E30H0-D-1x	3500	80	720	3224	2803	38.7	27.9	116
BXKE-35G0800-A-1x	3500	90	160	670	570	38.5	6.2	108
BXKE-35G1500-B-1x	3500	90	320	1240	1054	38.0	12.2	102
BXKE-35G2000-C-1x	3500	90	480	1814	1542	37.3	17.9	101
BXKE-35G30H0-D-1x	3500	90	720	2676	2328	38.7	27.9	96
BXKE-40E0800-A-1x	4000	80	160	780	678	38.5	6.2	127
BXKE-40E1500-B-1x	4000	80	320	1545	1343	38.0	12.2	127
BXKE-40E2000-C-1x	4000	80	480	2261	1966	37.3	17.9	126
BXKE-40E30H0-D-1x	4000	80	720	3254	2830	38.7	27.9	117

Notes for Table 1:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. CRI values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg values for 90 CRI products is 50.
3. Drive current is referred to as nominal drive current.
4. Products tested under pulsed condition (10ms pulse width) at nominal test current where T_j (junction temperature) - T_c (case temperature) = 25°C .
5. Typical performance values are provided as a reference only and are not a guarantee of performance.
6. Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.
7. Minimum flux values at the nominal test current are guaranteed by 100% test.

Product Selection Guide

The following product configurations are available:

Table 1: Selection Guide, Pulsed Measurement Data ($T_c = 25^\circ\text{C}$)

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current ³ (mA)	Typical Pulsed Flux ^{4,5,6} $T_c = 25^\circ\text{C}$ (lm)	Minimum Pulsed Flux ^{6,7} $T_c = 25^\circ\text{C}$ (lm)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKE-40G0800-A-1x	4000	90	160	674	573	38.5	6.2	109
BXKE-40G1500-B-1x	4000	90	320	1389	1181	38.0	12.2	114
BXKE-40G2000-C-1x	4000	90	480	1950	1657	37.3	17.9	108
BXKE-40G30H0-D-1x	4000	90	720	2701	2349	38.7	27.9	97
BXKE-50E0800-A-1x	5000	80	160	783	681	38.5	6.2	127
BXKE-50E1500-B-1x	5000	80	320	1555	1352	38.0	12.2	128
BXKE-50E2000-C-1x	5000	80	480	2273	1977	37.3	17.9	127
BXKE-50E30H0-D-1x	5000	80	720	3354	2916	38.7	27.9	120
BXKE-50G0800-A-1x	5000	90	160	659	560	38.5	6.2	106
BXKE-50G1500-B-1x	5000	90	320	1360	1156	38.0	12.2	112
BXKE-50G2000-C-1x	5000	90	480	1995	1696	37.3	17.9	112
BXKE-50G30H0-D-1x	5000	90	720	2860	2431	38.7	27.9	103
BXKE-56E0800-A-1x	5600	80	160	790	687	38.5	6.2	128
BXKE-56E1500-B-1x	5600	80	320	1570	1365	38.0	12.2	129
BXKE-56E2000-C-1x	5600	80	480	2299	1999	37.3	17.9	128
BXKE-56E30H0-D-1x	5600	80	720	3474	3021	38.7	27.9	125
BXKE-65E0800-A-1x	6500	80	160	800	696	38.5	6.2	130
BXKE-65E1500-B-1x	6500	80	320	1595	1387	38.0	12.2	131
BXKE-65E2000-C-1x	6500	80	480	2337	2032	37.3	17.9	131
BXKE-65E30H0-D-1x	6500	80	720	3528	3067	38.7	27.9	126

Notes for Table 1:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. CRI values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg values for 90 CRI products is 50.
3. Drive current is referred to as nominal drive current.
4. Products tested under pulsed condition (10ms pulse width) at nominal test current where T_j (junction temperature) - T_c (case temperature) = 25°C .
5. Typical performance values are provided as a reference only and are not a guarantee of performance.
6. Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.
7. Minimum flux values at the nominal test current are guaranteed by 100% test.

Product Selection Guide

Table 2: Selection Guide, Pulsed Measurement Data ($T_c = 85^\circ\text{C}$)^{4,5}

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current ³ (mA)	Typical Pulsed Flux ^{4,5,6} $T_c = 25^\circ\text{C}$ (lm)	Minimum Pulsed Flux ⁶ $T_c = 25^\circ\text{C}$ (lm)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKE-27E0800-A-1x	2700	80	160	630	548	37.6	6.0	105
BXKE-27E1500-B-1x	2700	80	320	1231	1070	37.3	11.9	103
BXKE-27E2000-C-1x	2700	80	480	1802	1567	36.4	17.5	103
BXKE-27E30H0-D-1x	2700	80	720	2644	2299	37.3	26.9	98
BXKE-27G0800-A-1x	2700	90	160	510	444	37.6	6.0	85
BXKE-27G1500-B-1x	2700	90	320	997	867	37.3	11.9	84
BXKE-27G2000-C-1x	2700	90	480	1461	1271	36.4	17.5	84
BXKE-27G30H0-D-1x	2700	90	720	2199	1912	37.3	26.9	82
BXKE-30E0800-A-1x	3000	80	160	660	574	37.6	6.0	110
BXKE-30E1500-B-1x	3000	80	320	1291	1123	37.3	11.9	108
BXKE-30E2000-C-1x	3000	80	480	1884	1638	36.4	17.5	108
BXKE-30E30H0-D-1x	3000	80	720	2754	2395	37.3	26.9	102
BXKE-30G0800-A-1x	3000	90	160	531	461	37.6	6.0	88
BXKE-30G1500-B-1x	3000	90	320	1040	904	37.3	11.9	87
BXKE-30G2000-C-1x	3000	90	480	1516	1318	36.4	17.5	87
BXKE-30G30H0-D-1x	3000	90	720	2286	1988	37.3	26.9	85
BXKE-35E0800-A-1x	3500	80	160	682	593	37.6	6.0	113
BXKE-35E1500-B-1x	3500	80	320	1335	1161	37.3	11.9	112
BXKE-35E2000-C-1x	3500	80	480	1950	1695	36.4	17.5	112
BXKE-35E30H0-D-1x	3500	80	720	2837	2467	37.3	26.9	105
BXKE-35G0800-A-1x	3500	90	160	589	500	37.6	6.0	98
BXKE-35G1500-B-1x	3500	90	320	1075	914	37.3	11.9	90
BXKE-35G2000-C-1x	3500	90	480	1569	1334	36.4	17.5	90
BXKE-35G30H0-D-1x	3500	90	720	2355	2048	37.3	26.9	87
BXKE-40E0800-A-1x	4000	80	160	686	597	37.6	6.0	114
BXKE-40E1500-B-1x	4000	80	320	1339	1164	37.3	11.9	112
BXKE-40E2000-C-1x	4000	80	480	1955	1701	36.4	17.5	112
BXKE-40E30H0-D-1x	4000	80	720	2865	2490	37.3	26.9	106

Notes for Table 2:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. CRI values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg values for 90 CRI products is 50.
3. Drive current is referred to as nominal drive current.
4. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.
5. Typical performance is estimated based on operation under Pulsed with LED array mounted onto a heat sink with thermal interface material and the $T_c = T_c$ temperature maintained at 85°C . Based on Bridgelux test setup, values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.
6. Minimum flux values at elevated temperatures are provided for reference only and are not guaranteed by 100% production testing. Based on Bridgelux test setup, values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.

Product Selection Guide

Table 2: Selection Guide, Pulsed Measurement Data ($T_c = 85^\circ\text{C}$)^{4,5}

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current ³ (mA)	Typical Pulsed Flux ^{4,5} $T_c = 85^\circ\text{C}$ (lm)	Minimum Pulsed Flux ⁶ $T_c = 85^\circ\text{C}$ (lm)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKE-40G0800-A-1x	4000	90	160	592	503	37.6	6.0	99
BXKE-40G1500-B-1x	4000	90	320	1220	1037	37.3	11.9	103
BXKE-40G2000-C-1x	4000	90	480	1716	1458	36.4	17.5	98
BXKE-40G30H0-D-1x	4000	90	720	2378	2069	37.3	26.9	88
BXKE-50E0800-A-1x	5000	80	160	689	599	37.6	6.0	115
BXKE-50E1500-B-1x	5000	80	320	1348	1172	37.3	11.9	113
BXKE-50E2000-C-1x	5000	80	480	1966	1710	36.4	17.5	113
BXKE-50E30H0-D-1x	5000	80	720	2951	2566	37.3	26.9	110
BXKE-50G0800-A-1x	5000	90	160	579	492	37.6	6.0	97
BXKE-50G1500-B-1x	5000	90	320	1200	1020	37.3	11.9	101
BXKE-50G2000-C-1x	5000	90	480	1753	1490	36.4	17.5	100
BXKE-50G30H0-D-1x	5000	90	720	2513	2136	37.3	26.9	93
BXKE-56E0800-A-1x	5600	80	160	695	605	37.6	6.0	116
BXKE-56E1500-B-1x	5600	80	320	1361	1183	37.3	11.9	114
BXKE-56E2000-C-1x	5600	80	480	1988	1729	36.4	17.5	114
BXKE-56E30H0-D-1x	5600	80	720	3057	2658	37.3	26.9	114
BXKE-65E0800-A-1x	6500	80	160	704	612	37.6	6.0	117
BXKE-65E1500-B-1x	6500	80	320	1382	1202	37.3	11.9	116
BXKE-65E2000-C-1x	6500	80	480	2021	1758	36.4	17.5	116
BXKE-65E30H0-D-1x	6500	80	720	3105	2700	37.3	26.9	115

Notes for Table 2:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. CRI values are minimums. Minimum R_g value for 80 CRI products is 0, the minimum R_g values for 90 CRI products is 50.
3. Drive current is referred to as nominal drive current.
4. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.
5. Typical performance is estimated based on operation under Pulsed with LED array mounted onto a heat sink with thermal interface material and the $T_c = T_c$ temperature maintained at 85°C. Based on Bridgelux test setup, values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.
6. Minimum flux values at elevated temperatures are provided for reference only and are not guaranteed by 100% production testing. Based on Bridgelux test setup, values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.

Performance at Commonly Used Drive Currents

Bridgelux E Series LED arrays are tested to the specifications shown using the nominal drive currents in Table 1. Bridgelux E Series arrays may also be driven at other drive currents dependent on specific application design requirements. The performance at any drive current can be derived from the current vs. voltage characteristics shown in Figures 1-4 and the flux vs. current characteristics shown in Figures 5-8. The performance at commonly used drive currents is summarized in Table 3.

Table 3: Product Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V _f T _c = 25°C (V)	Typical Power T _c = 25°C (W)	Typical Flux ² T _c = 25°C (lm)	Typical Pulsed Flux ³ T _c = 85°C (lm)	Typical Efficacy T _c = 25°C (lm/W)
BXKE-27E0800-A-1x	80	80	35.4	2.8	389	343	138
		120	37.1	4.4	561	494	126
		160	38.5	6.2	716	630	116
		200	40.1	8.0	864	760	108
		240	41.4	9.9	994	875	100
BXKE-27E1500-B-1x	80	160	35.4	5.7	778	684	137
		240	37.1	8.9	1117	983	126
		320	38.0	12.2	1420	1231	116
		400	39.5	15.8	1692	1489	107
		480	40.3	19.3	1930	1699	100
BXKE-27E2000-C-1x	80	240	35.2	8.3	1146	1008	138
		360	36.5	12.7	1645	1448	130
		480	37.3	17.9	2083	1802	116
		600	38.7	22.9	2479	2181	108
		720	39.8	28.7	2833	2493	99
BXKE-27E30H0-D-1x	80	480	36.3	17.4	2128	1873	122
		600	37.6	22.5	2589	2278	115
		720	38.7	27.9	3005	2644	108
		840	39.9	33.5	3426	3015	102
		960	41.0	39.3	3804	3348	97
BXKE-27G0800-A-1x	90	80	35.4	2.8	315	278	111
		120	37.1	4.4	455	400	102
		160	38.5	6.2	580	510	94
		200	40.1	8.0	700	616	87
		240	41.4	9.9	805	709	81
BXKE-27G1500-B-1x	90	160	35.4	5.7	630	554	111
		240	37.1	8.9	905	796	102
		320	38.0	12.2	1150	997	95
		400	39.5	15.8	1370	1206	87
		480	40.3	19.3	1563	1376	81
BXKE-27G2000-C-1x	90	240	35.2	8.3	929	818	112
		360	36.5	12.7	1334	1174	105
		480	37.3	17.9	1689	1461	94
		600	38.7	22.9	2010	1769	88
		720	39.8	28.7	2297	2022	80

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7% tolerance on flux measurements.
3. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 3: Product Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V_f $T_c = 25^\circ\text{C}$ (V)	Typical Power $T_c = 25^\circ\text{C}$ (W)	Typical Flux ² $T_c = 25^\circ\text{C}$ (lm)	Typical Pulsed Flux ³ $T_c = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_c = 25^\circ\text{C}$ (lm/W)
BXKE-27G30H0-D-1x	90	480	36.3	17.4	1769	1557	102
		600	37.6	22.5	2147	1889	95
		720	38.7	27.9	2499	2199	90
		840	39.9	33.5	2826	2487	84
		960	41.0	39.3	3129	2753	80
BXKE-30E0800-A-1x	80	80	35.4	2.8	408	359	144
		120	37.1	4.4	588	517	132
		160	38.5	6.2	750	660	122
		200	40.1	8.0	905	796	113
		240	41.4	9.9	1041	916	105
BXKE-30E1500-B-1x	80	160	35.4	5.7	816	718	144
		240	37.1	8.9	1172	1032	132
		320	38.0	12.2	1490	1291	123
		400	39.5	15.8	1775	1562	112
		480	40.3	19.3	2025	1782	105
BXKE-30E2000-C-1x	80	240	35.2	8.3	1198	1054	145
		360	36.5	12.7	1721	1514	136
		480	37.3	17.9	2178	1884	122
		600	38.7	22.9	2592	2281	113
		720	39.8	28.7	2962	2607	103
BXKE-30E30H0-D-1x	80	480	36.3	17.4	2204	1939	127
		600	37.6	22.5	2676	2355	119
		720	38.7	27.9	3130	2754	112
		840	39.9	33.5	3530	3107	105
		960	41.0	39.3	3911	3442	100
BXKE-30G0800-A-1x	90	80	35.4	2.8	328	289	116
		120	37.1	4.4	473	416	106
		160	38.5	6.2	603	531	98
		200	40.1	8.0	727	640	91
		240	41.4	9.9	837	737	84
BXKE-30G1500-B-1x	90	160	35.4	5.7	657	578	116
		240	37.1	8.9	944	831	106
		320	38.0	12.2	1200	1040	99
		400	39.5	15.8	1430	1258	90
		480	40.3	19.3	1631	1435	84
BXKE-30G2000-C-1x	90	240	35.2	8.3	964	848	116
		360	36.5	12.7	1385	1218	109
		480	37.3	17.9	1753	1516	98
		600	38.7	22.9	2086	1835	91
		720	39.8	28.7	2384	2098	83
BXKE-30G30H0-D-1x	90	480	36.3	17.4	1833	1613	105
		600	37.6	22.5	2226	1958	99
		720	38.7	27.9	2598	2286	93
		840	39.9	33.5	2939	2586	88
		960	41.0	39.3	3257	2867	83

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.
3. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 3: Product Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V _f T _c = 25°C (V)	Typical Power T _c = 25°C (W)	Typical Flux ² T _c = 25°C (lm)	Typical Pulsed Flux ³ T _c = 85°C (lm)	Typical Efficacy T _c = 25°C (lm/W)
BXKE-35E0800-A-1x	80	80	35.4	2.8	421	371	149
		120	37.1	4.4	607	534	137
		160	38.5	6.2	775	682	126
		200	40.1	8.0	935	823	117
		240	41.4	9.9	1076	947	108
BXKE-35E1500-B-1x	80	160	35.4	5.7	844	742	149
		240	37.1	8.9	1212	1066	136
		320	38.0	12.2	1540	1335	127
		400	39.5	15.8	1835	1614	116
		480	40.3	19.3	2093	1842	108
BXKE-35E2000-C-1x	80	240	35.2	8.3	1240	1091	150
		360	36.5	12.7	1772	1557	140
		480	37.3	17.9	2254	1950	126
		600	38.7	22.9	2683	2361	117
		720	39.8	28.7	3066	2698	107
BXKE-35E30H0-D-1x	80	480	36.3	17.4	2277	2004	131
		600	37.6	22.5	2769	2436	123
		720	38.7	27.9	3224	2837	116
		840	39.9	33.5	3659	3219	109
		960	41.0	39.3	4058	3570	103
BXKE-35G0800-A-1x	90	80	35.4	2.8	364	299	130
		120	37.1	4.4	525	430	119
		160	38.5	6.2	670	549	108
		200	40.1	8.0	808	662	101
		240	41.4	9.9	930	762	94
BXKE-35G1500-B-1x	90	160	35.4	5.7	680	597	119
		240	37.1	8.9	976	858	110
		320	38.0	12.2	1240	1075	102
		400	39.5	15.8	1478	1300	94
		480	40.3	19.3	1686	1483	87
BXKE-35G2000-C-1x	90	240	35.2	8.3	998	878	120
		360	36.5	12.7	1426	1253	112
		480	37.3	17.9	1814	1569	101
		600	38.7	22.9	2159	1899	94
		720	39.8	28.7	2468	2171	86
BXKE-35G30H0-D-1x	90	480	36.3	17.4	1894	1667	109
		600	37.6	22.5	2303	2025	102
		720	38.7	27.9	2676	2355	96
		840	39.9	33.5	3046	2679	91
		960	41.0	39.3	3379	2974	86
BXKE-40E0800-A-1x	80	80	35.4	2.8	424	373	150
		120	37.1	4.4	611	538	137
		160	38.5	6.2	780	686	127
		200	40.1	8.0	941	828	117
		240	41.4	9.9	1083	953	109

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7% tolerance on flux measurements.
3. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 3: Product Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V _f T _c = 25°C (V)	Typical Power T _c = 25°C (W)	Typical Flux ² T _c = 25°C (lm)	Typical Pulsed Flux ³ T _c = 85°C (lm)	Typical Efficacy T _c = 25°C (lm/W)
BXKE-40E1500-B-1x	80	160	35.4	5.7	846	745	150
		240	37.1	8.9	1216	1070	137
		320	38.0	12.2	1545	1339	127
		400	39.5	15.8	1841	1620	116
		480	40.3	19.3	2100	1848	109
BXKE-40E2000-C-1x	80	240	35.2	8.3	1243	1094	150
		360	36.5	12.7	1786	1572	141
		480	37.3	17.9	2261	1955	126
		600	38.7	22.9	2690	2367	117
		720	39.8	28.7	3074	2705	107
BXKE-40E30H0-D-1x	80	480	36.3	17.4	2302	2026	132
		600	37.6	22.5	2798	2462	124
		720	38.7	27.9	3254	2865	117
		840	39.9	33.5	3701	3256	110
		960	41.0	39.3	4106	3613	104
BXKE-40G0800-A-1x	90	80	35.4	2.8	368	323	131
		120	37.1	4.4	529	465	120
		160	38.5	6.2	674	592	109
		200	40.1	8.0	810	712	101
		240	41.4	9.9	938	824	95
BXKE-40G1500-B-1x	90	160	35.4	5.7	759	667	133
		240	37.1	8.9	1090	958	122
		320	38.0	12.2	1389	1220	114
		400	39.5	15.8	1671	1468	106
		480	40.3	19.3	1933	1698	100
BXKE-40G2000-C-1x	90	240	35.2	8.3	1072	960	129
		360	36.5	12.7	1541	1379	121
		480	37.3	17.9	1950	1716	108
		600	38.7	22.9	2321	2078	101
		720	39.8	28.7	2653	2375	92
BXKE-40G30H0-D-1x	90	480	36.3	17.4	1915	1685	110
		600	37.6	22.5	2327	2047	103
		720	38.7	27.9	2701	2378	97
		840	39.9	33.5	3081	2710	92
		960	41.0	39.3	3419	3009	87
BXKE-50E0800-A-1x	80	80	35.4	2.8	426	375	150
		120	37.1	4.4	614	540	138
		160	38.5	6.2	783	689	127
		200	40.1	8.0	944	831	118
		240	41.4	9.9	1087	957	110
BXKE-50E1500-B-1x	80	160	35.4	5.7	852	750	150
		240	37.1	8.9	1224	1077	138
		320	38.0	12.2	1555	1348	128
		400	39.5	15.8	1852	1630	117
		480	40.3	19.3	2114	1860	109

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7% tolerance on flux measurements.
3. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 3: Product Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V _f T _c = 25°C (V)	Typical Power T _c = 25°C (W)	Typical Flux ² T _c = 25°C (lm)	Typical Pulsed Flux ³ T _c = 85°C (lm)	Typical Efficacy T _c = 25°C (lm/W)
BXKE-50E2000-C-1x	80	240	35.2	8.3	1250	1100	151
		360	36.5	12.7	1796	1580	142
		480	37.3	17.9	2273	1966	127
		600	38.7	22.9	2705	2381	118
		720	39.8	28.7	3092	2721	108
BXKE-50E30H0-D-1x	80	480	36.3	17.4	2357	2075	135
		600	37.6	22.5	2861	2517	127
		720	38.7	27.9	3354	2951	120
		840	39.9	33.5	3768	3316	112
		960	41.0	39.3	4172	3671	106
BXKE-50G0800-A-1x	90	80	35.4	2.8	360	317	129
		120	37.1	4.4	517	455	118
		160	38.5	6.2	659	579	106
		200	40.1	8.0	793	697	99
		240	41.4	9.9	917	806	93
BXKE-50G1500-B-1x	90	160	35.4	5.7	743	653	131
		240	37.1	8.9	1067	937	120
		320	38.0	12.2	1360	1194	112
		400	39.5	15.8	1635	1437	104
		480	40.3	19.3	1892	1662	98
BXKE-50G2000-C-1x	90	240	35.2	8.3	1096	958	132
		360	36.5	12.7	1566	1376	123
		480	37.3	17.9	1995	1753	112
		600	38.7	22.9	2400	2109	105
		720	39.8	28.7	2777	2439	97
BXKE-50G30H0-D-1x	90	480	36.3	17.4	2037	1790	117
		600	37.6	22.5	2461	2162	109
		720	38.7	27.9	2860	2513	103
		840	39.9	33.5	3254	2859	97
		960	41.0	39.3	3613	3174	92
BXKE-56E0800-A-1x	80	80	35.4	2.8	430	378	152
		120	37.1	4.4	619	545	139
		160	38.5	6.2	790	695	128
		200	40.1	8.0	953	838	119
		240	41.4	9.9	1097	965	111
BXKE-56E1500-B-1x	80	160	35.4	5.7	860	757	152
		240	37.1	8.9	1235	1087	139
		320	38.0	12.2	1570	1361	129
		400	39.5	15.8	1870	1646	118
		480	40.3	19.3	2134	1878	110
BXKE-56E2000-C-1x	80	240	35.2	8.3	1264	1113	153
		360	36.5	12.7	1816	1598	143
		480	37.3	17.9	2299	1988	128
		600	38.7	22.9	2735	2407	119
		720	39.8	28.7	3126	2751	109

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7% tolerance on flux measurements.
3. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 3: Product Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V _f T _c = 25°C (V)	Typical Power T _c = 25°C (W)	Typical Flux ² T _c = 25°C (lm)	Typical Pulsed Flux ³ T _c = 85°C (lm)	Typical Efficacy T _c = 25°C (lm/W)
BXKE-56E30H0-D-1x	80	480	36.3	17.4	2451	2157	141
		600	37.6	22.5	2978	2621	132
		720	38.7	27.9	3474	3057	125
		840	39.9	33.5	3932	3461	117
		960	41.0	39.3	4359	3836	111
BXKE-65E0800-A-1x	80	80	35.4	2.8	435	383	154
		120	37.1	4.4	627	552	141
		160	38.5	6.2	800	704	130
		200	40.1	8.0	965	849	120
		240	41.4	9.9	1111	978	112
BXKE-65E1500-B-1x	80	160	35.4	5.7	874	769	154
		240	37.1	8.9	1255	1104	141
		320	38.0	12.2	1595	1382	131
		400	39.5	15.8	1900	1672	120
		480	40.3	19.3	2168	1908	112
BXKE-65E2000-C-1x	80	240	35.2	8.3	1285	1131	155
		360	36.5	12.7	1846	1625	146
		480	37.3	17.9	2337	2021	131
		600	38.7	22.9	2781	2447	121
		720	39.8	28.7	3178	2797	111
BXKE-65E30H0-D-1x	80	480	36.3	17.4	2493	2194	143
		600	37.6	22.5	3031	2667	135
		720	38.7	27.9	3528	3105	126
		840	39.9	33.5	4006	3525	120
		960	41.0	39.3	4444	3910	113

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7% tolerance on flux measurements.
3. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.

Electrical Characteristics

Table 4: Electrical Characteristics

Part Number	Drive Current (mA)	Forward Voltage Pulsed, $T_c = 25^\circ\text{C}$ (V) ^{1,2,3}			Typical Coefficient of Forward Voltage ⁴ $\Delta V_f / \Delta T_c$ (mV/ $^\circ\text{C}$)	Typical Thermal Resistance Junction to Case ^{5,6} R_{j-c} ($^\circ\text{C}/\text{W}$)	Driver Selection Voltages ⁷ (V)	
		Minimum	Typical	Maximum			V_f Min. Hot $T_c = 105^\circ\text{C}$ (V)	V_f Max. Cold $T_c = -40^\circ\text{C}$ (V)
BXKE-xxx0800-A-1x	160	34.5	38.5	42.0	-15.2	2.13	33.3	43.0
BXKE-xxx1500-B-1x	320	34.5	38.0	42.0	-15.2	1.26	33.3	43.0
BXKE-xxx2000-C-1x	480	33.9	37.3	41.3	-14.4	0.94	32.7	42.2
BXKE-xxx30H0-D-1x	720	35	38.7	42.7	-14.4	0.74	-	-

Notes for Table 4:

1. Parts are tested in pulsed conditions, $T_c = 25^\circ\text{C}$. Pulse width is 10ms.
2. Voltage minimum and maximum are provided for reference only and are not a guarantee of performance.
3. Bridgelux maintains a tester tolerance of $\pm 0.10\text{V}$ on forward voltage measurements.
4. Typical coefficient of forward voltage tolerance is $\pm 0.1\text{mV}$ for nominal current.
5. Thermal resistance values are based from test data of a 3000K 80 CRI product.
6. Thermal resistance value was calculated using total electrical input power; optical power was not subtracted from input power. The thermal interface material used during testing is not included in the thermal resistance value.
7. V_f min hot and max cold values are provided as reference only and are not guaranteed by test. These values are provided to aid in driver design and selection over the operating range of the product.

Absolute Maximum Ratings

Table 5: Maximum Ratings

Parameter	Maximum Rating			
LED Junction Temperature (T_j)	140°C			
Storage Temperature	-40°C to +100°C			
Operating Case Temperature ^{1,2} (T_c)	105°C			
Soldering Temperature	350°C \leq 3,5sec			
	BXKE-xxx0800-A-1x	BXKE-xxx1500-B-1x	BXKE-xxx2000-C-1x	BXKE-xxx30H0-D-1x
Maximum Drive Current ³	240 mA	480 mA	720 mA	960 mA
Maximum Reverse Voltage ⁴	-60 V	-60V	-60V	-60V

Notes for Table 5:

1. For the IEC 62717 requirement, please consult your Bridgelux sales representative.
2. Operating Case Temperature 105°C is with drive current \leq 160mA. When drive current is Maximum drive current, Operating Case Temperature should be limited with \leq 90°C.
3. Arrays may be driven at higher currents however lumen maintenance may be reduced.
4. Light emitting diodes are not designed to be driven in reverse voltage and will not produce light under this condition. Maximum rating provided for reference only.

Performance Curves

Figure 1: E10A Forward Voltage vs. Forward Current, $T_c=25^\circ\text{C}$

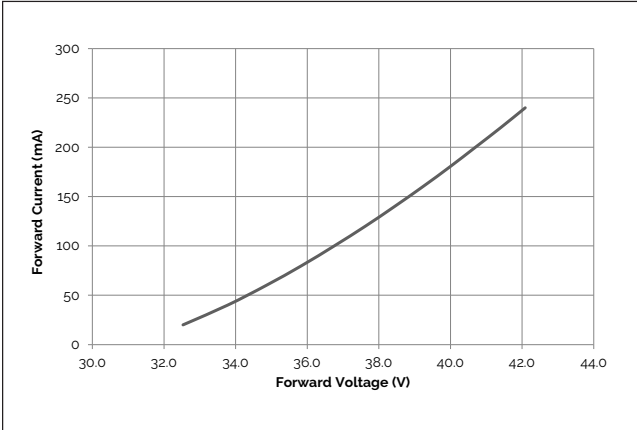


Figure 2: E10B Forward Voltage vs. Forward Current, $T_c=25^\circ\text{C}$

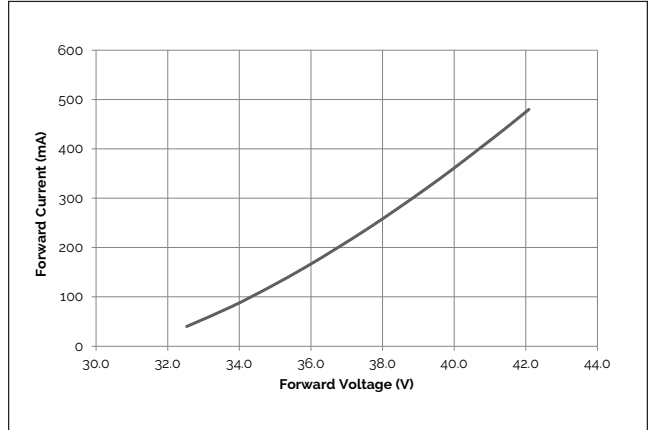


Figure 3: E10C Forward Voltage vs. Forward Current, $T_c=25^\circ\text{C}$

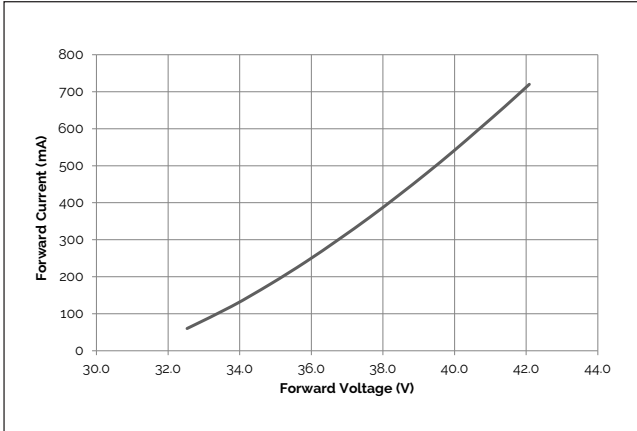


Figure 4: E10D Forward Voltage vs. Forward Current, $T_c=25^\circ\text{C}$

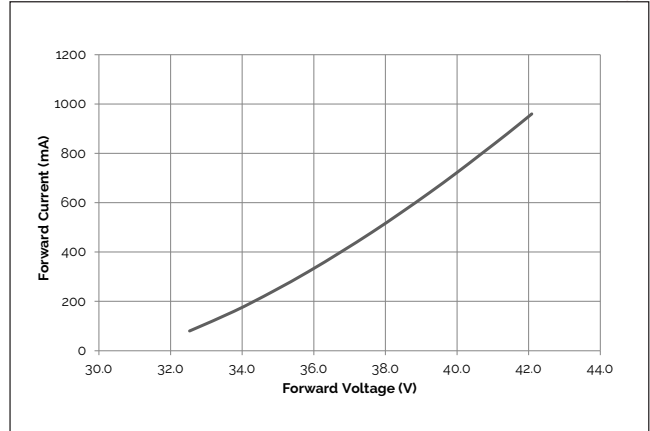


Figure 5: E10A Relative Flux vs. Drive Current $T_c=25^\circ\text{C}$

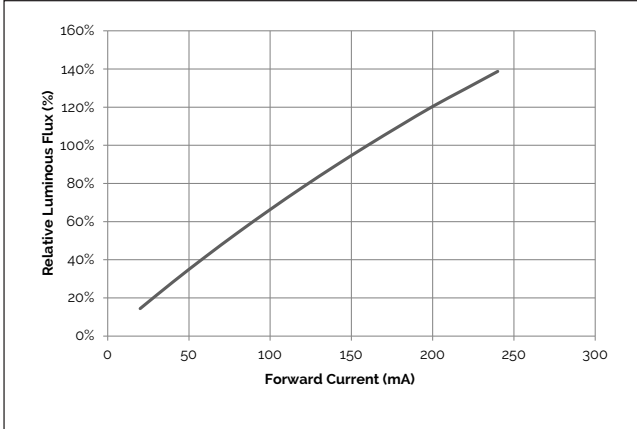
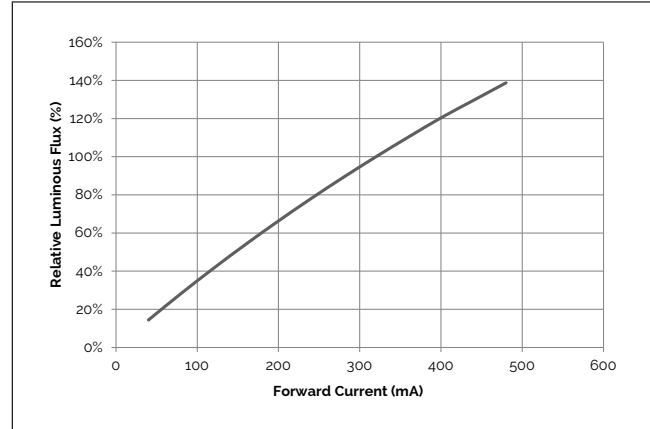


Figure 6: E10B Relative Flux vs. Drive Current $T_c=25^\circ\text{C}$



Note for Figures 1-6:

1. Bridgelux does not recommend driving high power LEDs at low currents. Doing so may produce unpredictable results. Pulse width modulation (PWM) is recommended for dimming effects.

Performance Curves

Figure 7: E10C Relative Flux vs. Drive Current $T_c=25^\circ\text{C}$

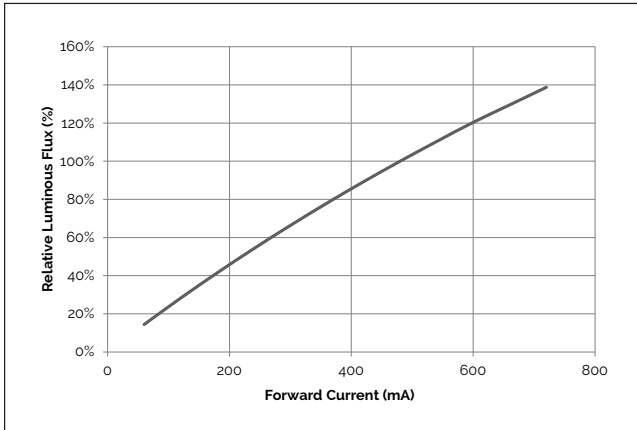


Figure 8: E10D Relative Flux vs. Drive Current $T_c=25^\circ\text{C}$

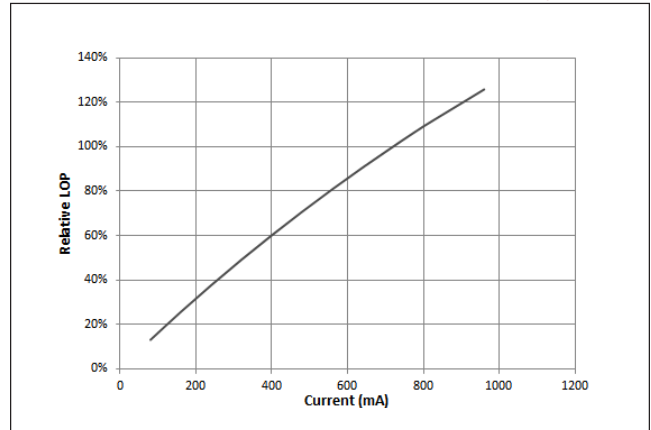


Figure 9: Typical Pulsed Flux vs. T_c Temperature

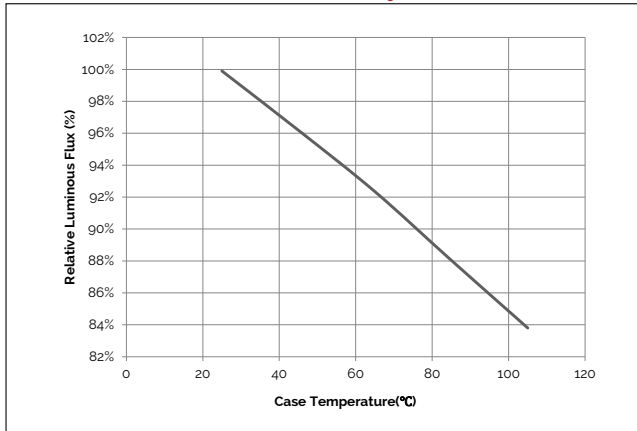


Figure 10: Typical Pulsed ccx Shift vs. T_c Temperature

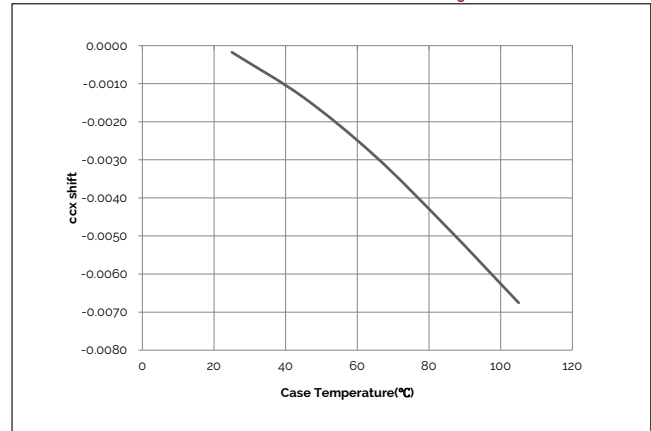
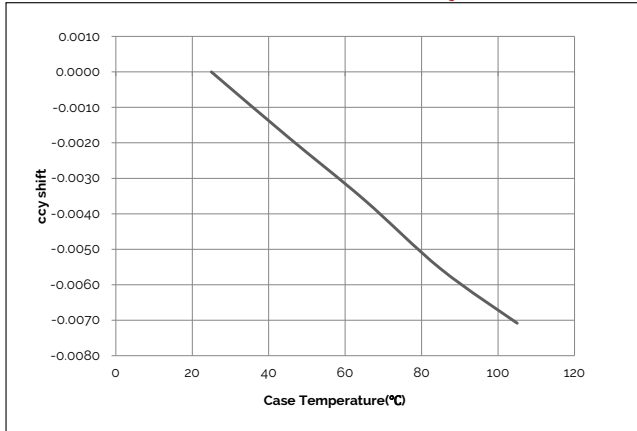


Figure 11: Typical Pulsed ccy Shift vs. T_c Temperature

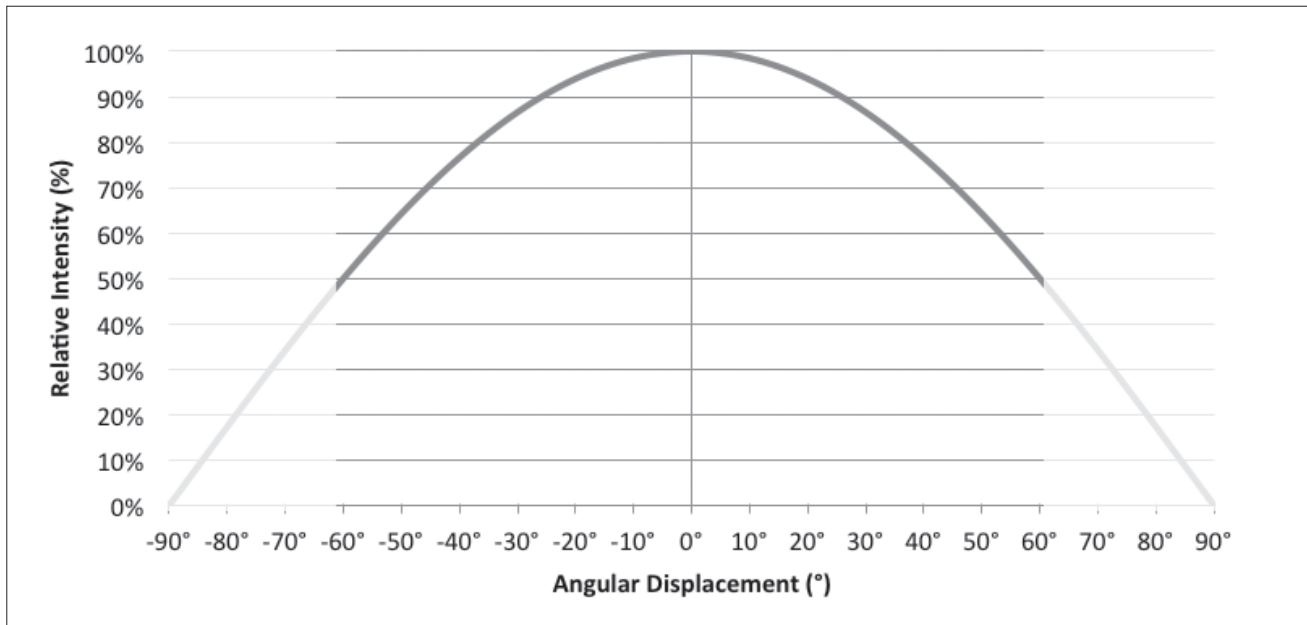


Note for Figures 7-11:

1. Bridgelux does not recommend driving high power LEDs at low currents. Doing so may produce unpredictable results. Pulse width modulation (PWM) is recommended for dimming effects.
2. Characteristics shown for neutral white based on 3000K and 80 CRI.
3. For other color SKUs, the shift in color will vary. Please contact your Bridgelux sales representative for more information.

Typical Radiation Pattern

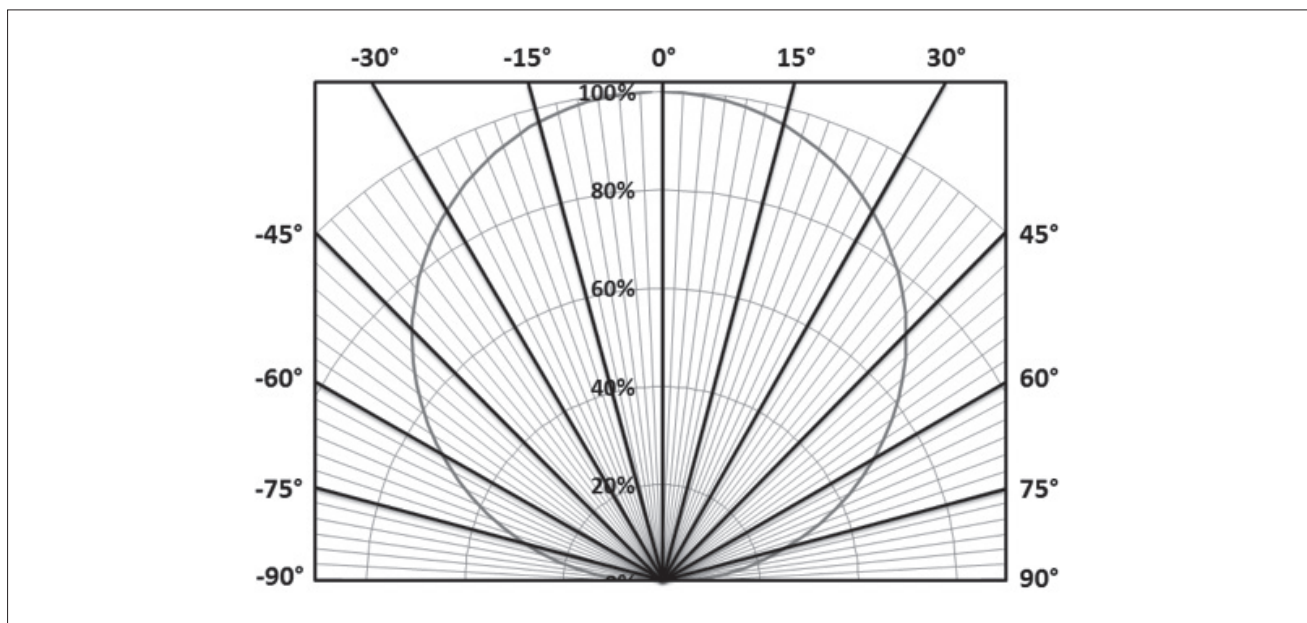
Figure 12: Typical Spatial Radiation Pattern



Notes for Figure 12:

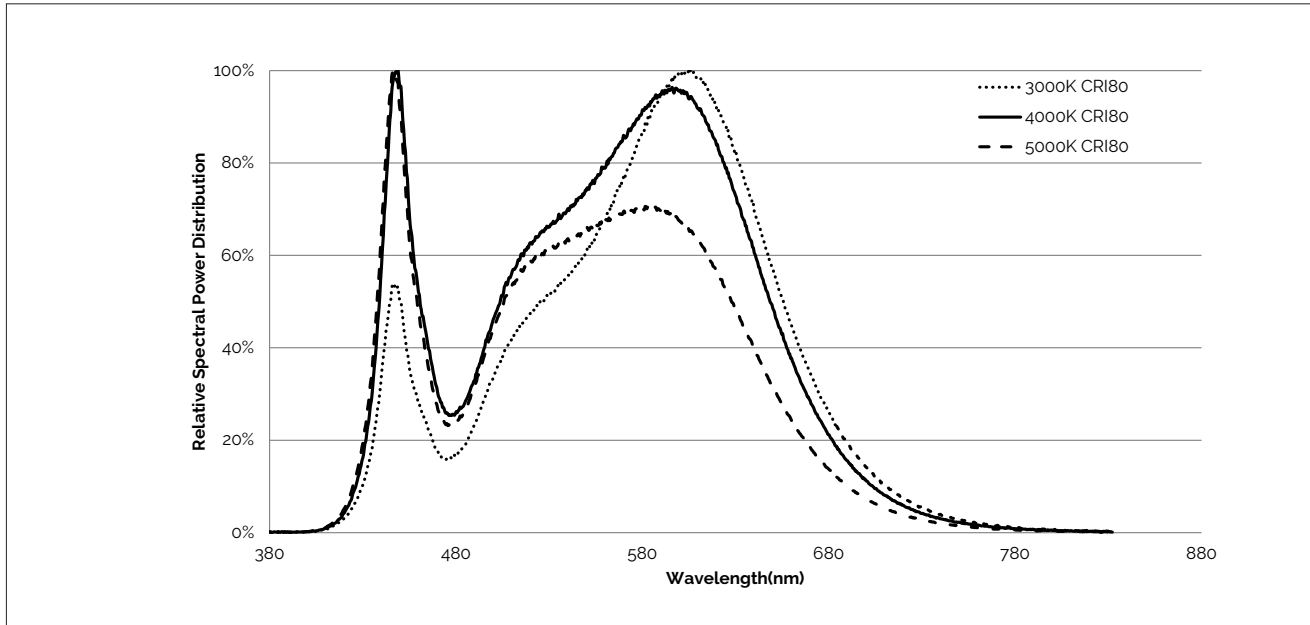
1. Typical viewing angle is 120°.
2. The viewing angle is defined as the off axis angle from the centerline where intensity is ½ of the peak value.

Figure 13: Typical Polar Radiation Pattern



Typical Color Spectrum

Figure 14: Typical Color Spectrum

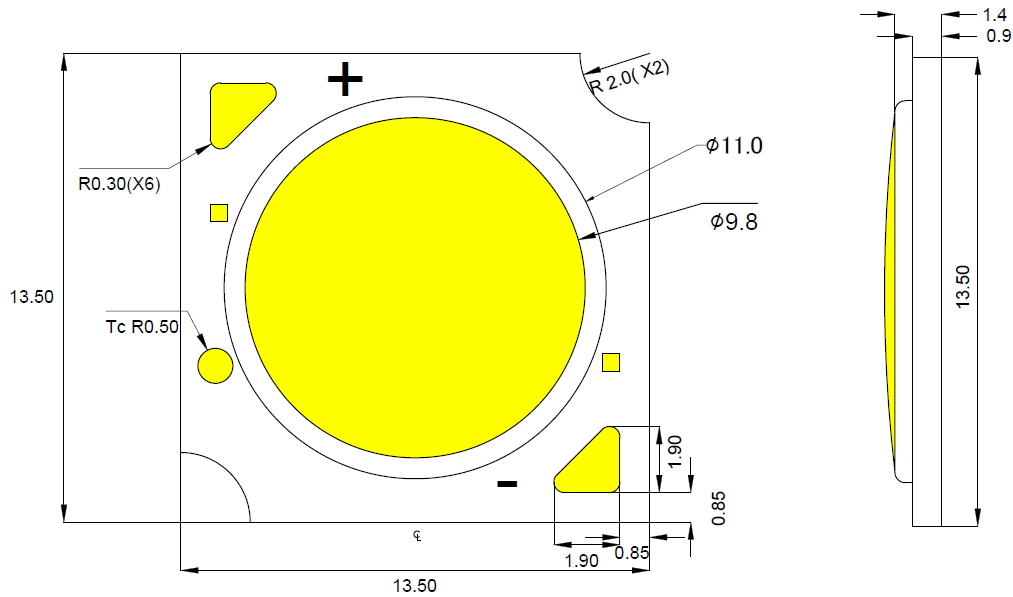


Notes for Figure 14:

1. Color spectra measured at nominal current for $T_j = T_c = 25^\circ\text{C}$.
2. Color spectra shown is 2700K and 80 CRI.
3. Color spectra shown is 3000K and 80 CRI.
4. Color spectra shown is 5000K and 80 CRI.

Mechanical Dimensions

Figure 15: Bridgelux E10 LED Array



Notes for Figure 15:

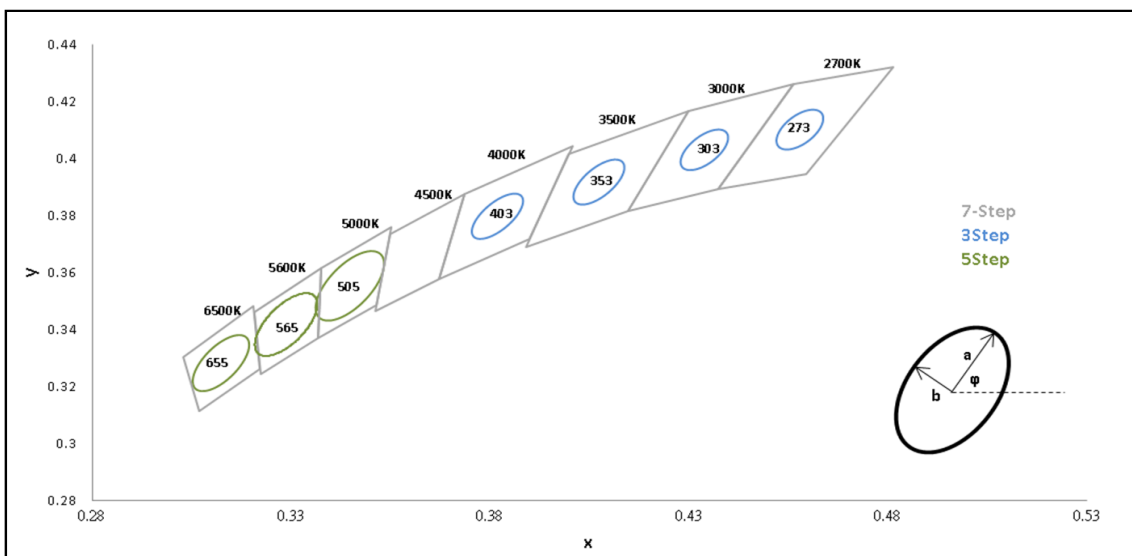
1. Drawings are not to scale.
2. Drawing dimensions are in millimeters.
3. Unless otherwise specified, tolerances are $\pm 0.1\text{mm}$.
4. Mounting holes (2X) are for M2.5 screws.
5. Screws with flat shoulders (pan, dome, button, round, truss, mushroom) provide optimal torque control. Do NOT use flat, countersink, or raised head screws.
6. The optical center of the LED Array is nominally defined by the mechanical center of the array to a tolerance of $\pm 0.2\text{mm}$.
7. Bridgelux maintains a flatness of 0.10mm across the mounting surface of the array.

Color Binning Information

Table 6: xy Bin Coordinates and Associated Typical CCT ($T_j=85^\circ\text{C}$)

CCT	Center Point		Degree	3 step		4 step																									
	x	y		a	b	a	b																								
2700K	0.4578	0.4101	53.700	0.0081	0.0042	N/A	N/A																								
3000K	0.4338	0.403	53.217	0.0083	0.0041	N/A	N/A																								
3500K	0.4073	0.3917	54.000	0.0093	0.0041	N/A	N/A																								
4000K	0.3818	0.3797	53.717	0.0094	0.0040	N/A	N/A </tr <tr> <td>5000K</td> <td>0.3447</td> <td>0.3553</td> <td>59.617</td> <td>N/A</td> <td>N/A</td> <td>0.0110</td> <td>0.0047</td> </tr> <tr> <td>5600K</td> <td>0.3287</td> <td>0.3417</td> <td>59.060</td> <td>N/A</td> <td>N/A</td> <td>0.0099</td> <td>0.0042</td> </tr> <tr> <td>6500K</td> <td>0.3123</td> <td>0.3282</td> <td>58.567</td> <td>N/A</td> <td>N/A</td> <td>0.0090</td> <td>0.0038</td> </tr>	5000K	0.3447	0.3553	59.617	N/A	N/A	0.0110	0.0047	5600K	0.3287	0.3417	59.060	N/A	N/A	0.0099	0.0042	6500K	0.3123	0.3282	58.567	N/A	N/A	0.0090	0.0038
5000K	0.3447	0.3553	59.617	N/A	N/A	0.0110	0.0047																								
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Figure 16: Typical Color Spectrum



Notes for Figure 16:

1. Pulsed Test Conditions at $T_j = 85^\circ\text{C}$.
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates in the CIE 1931 color space.

Design Resources

LM80

LM80 testing has been completed and the LM80 report is now available. Please contact your Bridgelux sales representative for the LM80 report.

Precautions

CAUTION: CHEMICAL EXPOSURE HAZARD

Exposure to some chemicals commonly used in luminaire manufacturing and assembly can cause damage to the LED array. Please consult Bridgelux Application Note AN31 for additional information.

CAUTION: EYE SAFETY

The Bridgelux E Series LED array emits visible light, that, under certain circumstances, could be harmful to the eye. Proper safeguards must be used.

CAUTION: RISK OF BURN

Do not touch the Bridgelux E Series LED array during operation. Allow the array to cool for a sufficient period of time before handling. The Bridgelux E Series LED array may reach elevated temperatures such that could burn skin when touched

CAUTION

CONTACT WITH LIGHT EMITTING SURFACE (LES)

Avoid any contact with the LES. Do not touch the LES of the LED array or apply stress to the LES (yellow phosphor resin area). Contact may cause damage to the LED array.

Optics and reflectors must not be mounted in contact with the LES (yellow phosphor resin area). Use the mechanical features of the LED array housing, edges and/or mounting holes to locate and secure optical devices as needed.

Disclaimers

MINOR PRODUCT CHANGE POLICY

The rigorous qualification testing on products offered by Bridgelux provides performance assurance. Slight cosmetic changes that do not affect form, fit, or function may occur as Bridgelux continues product optimization.

STANDARD TEST CONDITIONS

Unless otherwise stated, array testing is performed at the nominal drive current.

About Bridgelux: Bridging Light and Life™

At Bridgelux, we help companies, industries and people experience the power and possibility of light. Since 2002, we've designed LED solutions that are high performing, energy efficient, cost effective and easy to integrate. Our focus is on light's impact on human behavior, delivering products that create better environments, experiences and returns—both experiential and financial. And our patented technology drives new platforms for commercial and industrial luminaires.

For more information about the company, please visit

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